REMARKS

By the present amendment, claims 1 and 4 have been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. Entry of these amendments is respectfully requested.

In the Office Action, claim 4 was rejected under the second paragraph of 35 USC § 112 as being indefinite. Specifically in making this rejection, it was asserted that the noted phrase in claim 4 was unclear. In response, the phrase has been amended herein to read "from at least one end of the fuel transporting hose." Accordingly, withdrawal of the rejection under the second paragraph of 35 U.S.C. § 112 is respectfully requested.

Claims 1-4 were rejected under 35 USC § 103(a) as being unpatentable over Japanese patent publication 08-216278 in view of Japanese patent publication 9-239807. In making this rejection, it was asserted that the former publication (the '278 publication) teaches the entire method for manufacturing a hose as claimed with the exception of extrusion molding the inner layer without a mandrel. The latter publication (the '807 publication) was then asserted to supply this deficiency. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

Before discussing the rejection in detail, a brief review of the presently claimed invention may be quite instructive. The subject invention as defined by amended claim 1 herein relates to a method for manufacturing a fuel transporting hose having an intermediate rubber layer and a rubber outer layer sequentially laminated on an outer peripheral surface of a fluoro rubber inner layer. This method comprises the steps of: co-extruding fluoro rubber and an intermediate layer rubber material without using a mandrel to form the intermediate rubber layer on an outer peripheral surface of the fluoro rubber inner layer; extruding an outer layer rubber material on an outer peripheral surface of the intermediate rubber layer to form the rubber outer layer and thereby form an unvulcanized hose having the fluoro rubber inner layer, the intermediate rubber layer and the rubber outer layer; after the above steps, vulcanizing the unvulcanized hose to form a fuel transporting hose; and forming a fluorine-modified silicone lubricating layer on an inner peripheral surface of the fluoro rubber inner layer.

Important features of the presently claimed invention include the following features (A), (B) and (C):

(A) The fluoro rubber and an intermediate layer rubber material are co-extruded without using a mandrel to form the intermediate rubber layer on an outer peripheral surface of the fluoro rubber inner layer.

(B) An unvulcanized hose having the fluoro rubber inner layer, the intermediate rubber layer and the rubber outer layer is vulcanized to form a fuel transporting hose.

(C) A fluorine-modified silicone lubricating layer is formed on an inner peripheral surface of the fluoro rubber inner layer.

With regard to feature (A), the present invention manufactures a fuel transporting hose without the use of a mandrel so that it becomes unnecessary to pull out the mandrel by water pressure. It also becomes unnecessary to consider pressure resistance in pulling out the mandrel by water pressure. Therefore, the method of the present invention can significantly reduce manufacturing costs, equipment costs and material costs, in comparison with conventional methods which do use a mandrel.

With respect to feature (C), a fluorine-modified silicone lubricating layer is formed on the inner peripheral surface of the fluoro rubber inner layer in accordance with the method of the present invention. Thus, the present invention is superior in all characteristics including insertability, sealability and pull-out resistance. It is submitted that the subject method, and the specific features and advantages thereof, are not taught or suggested by the cited Japanese patent publications, whether taken singly or in combination.

More particularly, the cited '278 Japanese publication discloses "a method of manufacturing a hose comprising the steps of: extrusion molding an unvulcanized fluoro rubber on the surface of a mandrel; vulcanizing the unvulcanized fluoro rubber to form a hose having a fluoro rubber inner layer; and coating a fluoro-modified silicone lubricant solution on an inner peripheral surface of the fluoro rubber inner layer to form a lubricating layer." However, the method of the present invention include the important feature that fluoro rubber and an intermediate layer rubber material are co-extruded without using a mandrel. As mentioned above, the subject method which does not use a mandrel has the important effects in that manufacturing costs, equipment costs and material costs can be significantly reduced, in comparison with conventional methods that use a mandrel. There is no teaching or suggestion in the '278 Japanese publication regarding such characteristic features of the subject invention and resultant important effects. It is submitted that these teaching deficiencies are not supplied by the '807 Japanese patent publication.

More particularly, the cited '807 Japanese publication discloses a method for producing a multilayered hose including a resin layer and a rubber layer being in a mutually close contact state by using an extrusion molding machine. The disclosed method comprises extrusion-molding the multilayered hose by degassing the gap between the resin layer and the rubber layer to extrude both layers from the die head of the extrusion molding machine in a mutually close contact state.

Thus, the '807 Japanese publication describes a method for adhering the resin layer to the rubber layer without using a mandrel, but, according to the disclosed method, it is necessary to degas the gap between the resin layer and the rubber layer. Such a degassing process requires special equipment, for example, a vacuum device 10 and the like as shown in Fig. 1 of the publication, as well as an additional and special step of adjusting the degree of vacuum by degassing and the like. In distinct contrast, the method of the presently claimed invention, as stated above, has a characteristic feature that fluoro rubber and an intermediate layer rubber material are co-extruded without using a mandrel to form the intermediate rubber layer on an outer peripheral surface of the fluoro rubber inner layer.

In summary and as described above, a method for manufacturing a fuel transporting hose according to the present invention differs from a method for adhering a resin layer to a rubber layer according to the '807 Japanese publication in that, among other things, the rubber materials are co-extruded without using a mandrel. As such, the method of the present invention does not require the special equipment such as a vacuum device and the like as well as the special step of adjusting the degree of vacuum by degassing, since it is not necessary to degas the gap between the resin layer and the rubber layer. Further, there is no teaching or suggestion in the '807 Japanese publication concerning the presently claimed feature that a fluorine-modified silicone lubricating layer is formed on an inner peripheral surface of the fluoro rubber inner layer, and the unique effects obtained

thereby.

It is further submitted in support of the patentability of the subject invention over the teachings of the cited publications is that these publications provide no suggestion to motivate one of ordinary skill in the art to combine their teachings in the manner proposed in the Action. It is well established principle of U.S. patent practice that the prior art must contain some suggestion for combination since, without such, any combination is pure speculation on the part of the examiner and is based on a prohibited hindsight reconstruction from applicants' own disclosure.

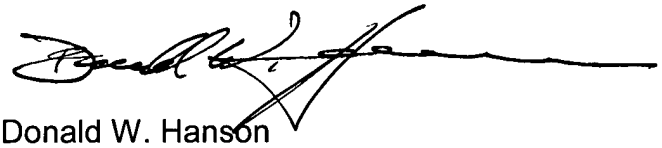
For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claims 1 through 4 as amended over the cited publications are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



Donald W. Hanson
Attorney for Applicants
Reg. No. 27,133

Atty. Docket No. 010760
Suite 1000,1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930
DWH/rab

23850
PATENT TRADEMARK OFFICE